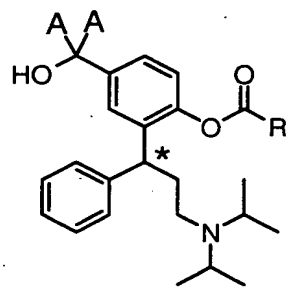
Claims

1. The device for the transdermal delivery of a compound of the Formula I



Formula I

in which A means hydrogen or deuterium, R stands for a group that is selected from C_{1-6}-alkyl, C_{3-10}-cycloalkyl or phenyl, which may each be substituted with C_{1-3}-alkoxy, fluorine, chlorine, bromine, iodine, nitro, amino, hydroxyl, oxo, mercapto or deuterium and where the C-atom marked with a star "*" is present in the (R)-configuration,

characterized by the fact that the compound of the general Formula I is present in a polymer matrix and is released through the human skin in a dose of 0.5-20 mg per day.

2. A device according to claim 1, characterized by the fact that the device is manufactured by a compound of the Formula I being added to the polymer matrix in the form of the free base.

3. A device according to one of the previous claims characterized by the fact that the polymer matrix incorporates 55-90 percent by weight of a contact adhesive and is self-adhesive.

4. A device according to one of the previous claims, characterized by the fact that the polymer matrix incorporates one or several contact adhesives which are chosen from the group of acrylates, ethylene vinyl acetates (EVA), silicones or styrene block copolymers (SXS).

5. A device according to one of the previous claims characterized by the fact that the polymer matrix consists of up to 50-95 percent by weight of a hot-meltable mixture of a silicone based contact adhesive and at least one softener.

6. A device according to one of the previous claims, characterized by the fact that the polymer matrix consists of up to 50-95 percent by weight from (a) a hydrophilic contact adhesive and/or (b) a mixture of a hydrophobic contact adhesive with 2-20 percent by weight, based on the total weight of the polymer matrix, of a hydrophilic polymer and/or (c) a mixture of a hydrophilic with a hydrophobic contact adhesive.

7. A device according to claim 6 whereby the hydrophilic polymer is PEO, PVP or PVAc.

8. A device according to one of the previous claims, whereby R is selected in Formula I from the group methyl, ethyl, isopropyl, 1-propyl, 1-butyl, 2-butyl, tertiary-butyl, iso-butyl, pentyl and hexyl.

9. A device according to one of the previous claims, whereby the compound is (R)-2-[3-(1,1-diisopropylamino)-1-phenylpropyl]-4-(hydroxymethyl)phenyl isobutyrate (fesoterodine).

10. A device according to one of the previous claims characterized by the fact that the compound of the Formula I was introduced into the polymer matrix in a degree of purity of above 97 percent by weight.

11. A device according to one of the previous claims, characterized by the fact that the device

(a) exhibits a surface of a maximum 50 cm^2,
(b) comprises a self-adhesive polymer layer, which
    (b1) exhibits a weight of 30-300 g/m^2,
    (b2) contains 50-95% by weight of a contact adhesive,
    (b3) contains a compound of the general Formula I in a concentration of 5-40 percent by weight based on the total weight of the polymer matrix and
(c) delivers said compound of the general Formula I with a steady flux rate of at least 4 $\mu g/cm^2$/hour through the human skin over a time period of at least 24 hours.

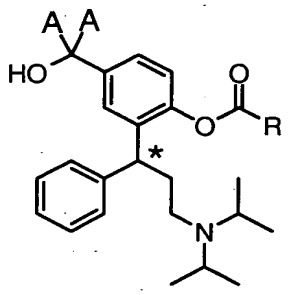
12. A device according to one of the previous claims characterized by the fact that the device exhibits a base area of a maximum of 40 cm^2, and the loading of the active ingredient of the self-adhesive polymer matrix amounts to 7-30 percent by weight.

13. A device according to one of the previous claims characterized by the fact that the device transports a compound of the general Formula I in a dose of at least 3 mg per day over at least 24 hours at a constant flux rate through the human skin.

14. A device according to one of the previous claims characterized by the fact that the device incorporates an adhesive matrix containing an active ingredient (1), a backing being impermeable and inert for the constituents of the adhesive matrix (2) as well as a protective layer detachable immediately before use (3).

15. A device for the transdermal delivery of the free base of (R)- 2-[3-(1,1-diisopropylamino)-1-phenylpropyl]-4-(hydroxymethyl)phenyl isobutyrate over a time period of at least 24 hours at a constant flux rate of at least 4 $\mu g/cm^2$/hour.

16. Use of a compound of the Formula I



Formula I

in which R stands for C_{1-6}-alkyl, C_{3-10}-cycloalkyl, substituted or non-substituted phenyl, and in which the C-atom marked with a star "*" is present in the (R)-configuration, for the manufacture of a medicine for transdermal delivery, characterized by the fact that the compound of the general Formula I is present in the medicine in a polymer matrix.

17. Use according to claim 16, characterized by the fact that the compound of the general Formula I is added to the polymer matrix in the form of the free base.

18. Use according to one of the previous claims characterized by the fact that the polymer matrix is self-adhesive.

19. Use according to one of the previous claims characterized by the fact that the polymer matrix containing the active ingredient is manufactured in a hot melt procedure.

20. Use according to one of the previous claims characterized by the fact that the polymer matrix containing the active ingredient is manufactured in a solvent procedure.

21. Use according to one of the previous claims characterized by the fact that the compound of the general Formula I is released in a dose of at least 3 mg per day over at least 24 hours at a constant flux rate through human skin.

22. Use according to one of the previous claims, whereby the polymer matrix comprises a contact adhesive from the group of polyacrylates, ethylene vinyl acetates (EVA), polyisobutylenes, silicones or styrene block copolymers (SXS).

23. Use according to one of the previous claims characterized by the fact that the polymer matrix contains 50-95 percent by weight of a contact adhesive that is selected from the group

(a) of the polyacrylates
(b) of the EVA-contact adhesives,
(c) of the silicone adhesives,
(d) of the SXS-adhesives,
(e) of the PIB-contact adhesives,

whereby 2-20 percent by weight of a hydrophilic polymer is added to each of the hydrophobic contact adhesives (c), (d) and (e) based on the total weight of the polymer matrix.

24. Use according to one of the previous claims, whereby the device

(a) exhibits a surface of a maximum 50 cm^2,

(b) comprises a self-adhesive polymer matrix, which

(b1) exhibits a weight of 30-300 g/m^2,

(b2) contains 50-95% by weight of a contact adhesive,

(b3) contains a compound of the general Formula I in a concentration of 5-40 percent by weight based on the total weight of the polymer matrix and

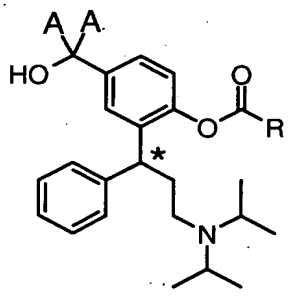
(c) delivers said compound of the general Formula I with a steady flux rate of at least 4 µg/cm^2/hour through the human skin over a time period of at least 24 hours.

25. Use according to one of the previous claims, whereby R is selected in Formula I from the group methyl, ethyl, isopropyl, 1-propyl, 1-butyl, 2-butyl, tertiary-butyl, iso-butyl, pentyl and hexyl.

26. Use according to one of the previous claims, whereby the compound is (R)-2-[3-(1,1-diisopropylamino)-1-phenylpropyl]-4-(hydroxymethyl)phenyl isobutyrate (fesoterodine).

27. A device or application according to one of the previous claims for the treatment of incontinence, in particular urge incontinence, hyperactivity of the detrusor, pollakisuria, nocturia or imperative urinary urgency.

28. Manufacture of a device according to one of claims 1-15, characterized by the fact that a compound of the general Formula I



Formula I

in which A means hydrogen or deuterium, R stands for a group that is selected from C_{1-6}-alkyl, C_{3-10}-cycloalkyl or phenyl, which may each be substituted with C_{1-3}-alkoxy, fluorine, chlorine, bromine, iodine, nitro, amino, hydroxyl, oxo, mercapto or deuterium and where the C-atom marked with a star "*" is present in the (R)-configuration, is introduced into a polymer matrix in the form of the free base.

29. Manufacture according to claim 28, characterized by the fact that a compound of the general Formula I is fesoterodine.

30. A method for the prevention or treatment of incontinence, in particular urge incontinence, hyperactivity of the detrusor, abnormally frequent micturation, nocturia or imperative urinary urgency through the administration of a device according to one of the claims 1-15 onto the skin of a mammal.